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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,310	04/19/2004	Yong Sung Ham	8734.025 C1	9810

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MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

LIANG, REGINA

ART UNIT	PAPER NUMBER
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2629

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/826,310

Applicant(s)

HAM, YONG SUNG

Examiner

Regina Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 5-8, 15-18, 20, 21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-8, 15-18, 20, 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to amendment filed 11/6/06. Claims 1, 2, 5-8, 15-18, 20, 21 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1-2, 6-8, 15-16, 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kusano et al. (US Patent No. 5,677,704).

As to claims 1, 7, 18, Kusano discloses a method of driving a liquid crystal display, comprising: modulating source data (e.g. 30A, 30B, 30C, 30D, Fig. 3) of one frame period using registered data from a frame period previous to the one frame (e.g. the 4-bit image data or frame data are registered data from a frame period previous to the frame using 3-bit frame data) and supplying the modulated data (e.g. the first frame and the second frame data are modulated data) to a liquid crystal panel in a first field (e.g. first frame and second frame) and applying data (e.g. the source data 30A, 30B, 30C are unchanged) different from the modulated data to the liquid crystal panel in a first field (e.g. third frame, see the TABLE 2 as shown in column 8).

As to claims 2, 8, Kusano discloses the data applied to the liquid crystal panel at the later period is the source data (e.g. 30A, 30B, 30C)

As to claim 6, Kusano discloses the source data (e.g. the data without modulation in the frame) are not applied to the liquid crystal panel while the modulation data are applied thereto

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(e.g. the modulated data in the first and second frame are displayed in the first and second frame periods which are different from the third frame period) .

As to claim 15, it would have been obvious to have a delay circuit for delay one field of data while another field of data are applied to the liquid crystal panel so that the second field of data can be displayed following the first field of the data.

As to claim 16, Kusano further discloses a data driver and a scanning driver (30, Fig. 2).

As to claim 21, note the discussion of claim 1 above. In addition, Table 2 of Kusano teaches the modulated data signal has a voltage level larger than that of the data signal (e.g., image data is (0001), the modulated data signal is (001)(+1) in first and second frame, data signal is (000) in third frame, so the modulated data signal has higher gray scale level (voltage level) than the data signal). Kusano also teaches the modulated data signal depends on data from a frame period previous to the one frame period (e.g., the 4-bit image data or frame data are inputted which is a frame period previous to the frame using 3-bit frame data outputted).

Claim Rejections - 35 USC § 103

4. Claims 5, 17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusano et al. (US Patent No. 5,677,704) in view of Aoki et al. (US Patent No. 4,775,891).

As to claims 5, 17 and 20, it is noted that Kusano discloses using three sub-frame for displaying the image data and not two sub-frame. Aoki is cited to teach a liquid crystal display device similar to Kusano. As shown in Figs 2 and 3, Aoki discloses that the image data can be display in two sub-frame. It would have been obvious to one of ordinary skill in the art to have

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modified Kusano with the features of using two sub-frame as taught by Aoki such that the frame control circuit can be simplified.

Response to Arguments

5. Applicant's arguments filed 11/6/06 have been fully considered but they are not persuasive.

Applicant's remarks on pages 5-6 regarding claim 1 that Kusano does not disclose at least "supplying the modulated data to a liquid crystal panel at an initial period of the one frame period; and applying data different from the modulated data to the liquid crystal panel at a later period of the one frame period", are not persuasive. In Kusano, one cycle period includes three frames outputting from the frame rate control portion and this one cycle period corresponds to the one frame period as claimed. Table 2 in column 8 of Kusano teaches the frame rate control portion supplying the modulated data to the display panel in the first and second frames and applying data (unchanged data) different from the modulated data to the liquid crystal panel in the third frame (the first and second frames in Table 2 correspond to an initial period of the one frame period; the third frame in Table 2 corresponds to a later period of the one frame period). Thus, claim 1 is anticipated by Kusano.

Applicant's remarks regarding claims 7 and 18 are not persuasive. Note the discussion of claim 1 above, the frame rate control portion as shown in Fig. 3 of Kusano discloses a data provider alternatively applying the modulated source data (first and second frame data are modulated data) and data or source data (third frame data are unchanged data) different from the

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modulated data to the liquid crystal panel through the data lines within the one frame period (one cycle period includes three frames).

Applicant's remarks regarding claim 21 are not persuasive. Note the discussion of claim 1 above. In addition, Table 2 of Kusano teaches the modulated data signal has a voltage level larger than that of the data signal (e.g., image data is (0001), the modulated data signal is (001)(+1) in first and second frame, data signal is (000) in third frame, so the modulated data signal has higher gray scale level (voltage level) than the data signal). Kusano also teaches the modulated data signal depends on data from a frame period previous to the one frame period (e.g., the 4-bit image data or frame data are inputted which is a frame period previous to the frame using 3-bit frame data outputted). Thus, claim 21 is anticipated by Kusano.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

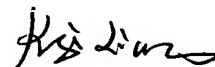
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Regina Liang
Primary Examiner
Art Unit 2674

1/5/07